

Appl. No. 10/605,678
Amtd. dated May 17, 2006
Reply to Office action of March 06, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

5 Claims 1-9 (cancelled)

Claim 10 (previously presented) A method of forming a gate structure comprising:

providing a substrate, and consecutively forming a gate oxide layer, a polysilicon layer, a silicide layer, and a cap layer onto the substrate;

10 forming a patterned mask layer on the cap layer;

patterning the cap layer and the silicide layer to form a first stacked gate structure using the patterned mask layer as a mask;

removing a portion of the silicide layer exposed on sidewalls of the first stacked gate structure with an etching solution to form a recess;

15 depositing a passivation layer onto the polysilicon layer and filling the recess, and performing an anisotropic etching process to remove the passivation layer besides the passivation layer filled in the recess to form a second stacked gate structure;

removing the polysilicon layer and the gate oxide layer using the second 20 stacked gate structure as a mask; and

removing the patterned mask layer.

Claim 11 (original) The method of claim 10 wherein the patterned mask layer comprises silicon oxynitride.

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Claim 12 (original) The method of claim 10 wherein the steps of forming the patterned mask layer comprises:

forming a silicon oxynitride layer on the cap layer;

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coating a photoresist layer on the silicon oxynitride;
performing an exposure process and a development process by using a photo
mask to form a photoresist pattern;
utilizing the photoresist pattern as a hard mask to remove the silicon oxynitride
5 not covered by the photoresist pattern; and
removing the photoresist pattern.

Claim 13 (original) The method of claim 10 wherein the silicide layer comprises tungsten
silicon.

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Claim 14 (original) The method of claim 10 wherein the etching solution is an ammonium
hydrogen peroxide mixture (APM) solution.

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Claim 15 (original) The method of claim 10 wherein the passivation layer comprises
silicon nitride.